

REMARKS

1. In response to the Office Action mailed November 20, 2003, Applicant respectfully requests reconsideration. Claims 1 and 3-17 were last presented for examination. All the claims were rejected in the outstanding Office Action. By the foregoing amendments, claims 1, 3, 11, 12, 15 and 16 have been amended. No claims have been added or canceled. Thus, upon entry of this paper, claims 1 and 3-17 will remain pending in this application. These amendments are believed not to introduce new matter and their entry is respectfully requested.

2. The foregoing amendments make explicit that which is implicit in the claims and, therefore, neither narrow nor alter the scope of the claims in any way. Accordingly, based upon the following Remarks only, Applicant respectfully requests that all outstanding objections and rejections be reconsidered, and that they be withdrawn.

Appeal Brief

3. Applicant notes with appreciation the acknowledgement that Applicant's Appeal Brief was deemed persuasive. Applicant also notes with appreciation the withdrawn finality of the previous Office Action.

Art of Record

4. Applicant acknowledges receipt of form PTO-892 (part of PTO Prosecution paper No. 13) listing additional references identified by the Examiner.

Claim Rejections

5. Independent claims 1 and 12, and dependent claims 3-5, 7 and 14-15 have been rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,127,038 to McCullough, *et al.* (hereinafter, "McCullough"). In addition, dependent claims 6, 8-10, 13 and 17 have been rejected under 35 U.S.C. §103(a) as being unpatentable over McCullough in view of Japanese Patent No. 200034457A to Kotani, *et al.* (hereinafter, "Kotani"). Based upon the following Remarks only, Applicant respectfully requests reconsideration and withdrawal of these rejections.

6. The Examiner asserts that the first coating layer 14 of McCullough is disposed in a cavity on the printed circuit board and on surfaces of the printed circuit board immediately surrounding the cavity so as to bridge across the one or more cavity openings and to at least partially infill the cavity wherein the cavity is substantially inaccessible to subsequently-applied coatings. The Examiner refers Applicant to column 3, lines 8 and 52-64 of McCullough in support of this interpretation. Independent claim 12 was rejected for similar reasons. (*See*, Office Action, pg. 4.) Applicant respectfully traverses these rejections.

7. McCullough teaches a coating consisting of two layers 14, 16 which are separately applied to all surfaces of the printed circuit board, including surfaces that define the walls of cavities on the printed circuit board. If McCullough's first coating layer 14 bridged across cavity openings to encapsulate and seal the cavity (as recited in Applicant's independent claim 12), or otherwise rendered cavities substantially inaccessible to subsequently-applied coatings, (as recited in Applicant's independent claim 1), first coating layer 14 would prevent McCullough's second coating layer 16 from being deposited on the first coating layer 14, directly contradicting the teachings of McCullough. Specifically, if McCullough's first coating layer 14 prevented McCullough's second coating layer 16 from coating the surfaces of a cavity to which first coating layer 14 was previously applied, then McCullough could not contain a "second coating layer 16 that is deposited onto the first coating layer 14, thereby providing a continuous, conformal, stratified coating 14, 16 which is sealed and corrosion resistant over the surface of the board, components and respective leads". (*See*, McCullough, col. 3, lns. 8-19; emphasis added.) That is, were McCullough's first coating layer 14 to function as alleged by the Examiner, McCullough would fail to achieve its purpose of providing a conformal coating comprised of two coating layers 14, 16 applied to all exposed surfaces on the printed circuit board including surfaces of the components and leads, including between and behind lead surfaces. (*See*, McCullough, col. 2, lns. 19-31; col. 3, lns. 8-11; lns. 61-64; emphasis added.) Thus, McCullough's first coating layer 14 does not, and in fact must not, bridge across cavity openings to encapsulate and seal the cavities as recited in Applicant's claim 12, nor render a cavity substantially inaccessible to subsequently-applied coating as recited in Applicant's claim 1. For at least these reasons, the rejection of claims 1 and 12 based on McCullough are improper and should be withdrawn.

8. The Examiner has continued to rely on the following teachings of McCullough in support of the above rejections.

After cleaning, a first coating layer 14 is deposited on most, and preferably all, of the printed circuit board surfaces 20, component surface 22 and lead surfaces 24 that may be potentially exposed to air, moisture or water.

...

In the preferred embodiment, the first coating layer comprises a material generally selected from the group consisting of parylene, urethane, acrylic, epoxy, and silicone-based resins. Most preferably, the first coating layer comprises parylene, which provides a bonded coating that will not delaminate from the printed circuit board or parts mounted thereto. The chemical composition of parylene is $C_{16}H_{14}C_{12}$. Furthermore, the use of parylene allows for board repair, via partial coating removal and redeposition, as necessary. The first coating 14 is preferably vacuum deposited on the ultra-clean circuit board and components mounted thereon to maximize coverage of board, component and lead surfaces while providing uniform deposition.

(See, McCulloh, col. 3, lns. 8-11 and 52-64.)

A fair reading of the above and other portions of McCullough fail to support the Examiner's interpretation of McCullough's first coating layer 14. Nowhere does McCullough disclose, teach or suggest that first coating layer 14 bridges across cavity openings or render cavities substantially inaccessible to second coating layer 16. The first excerpt teaches that first coating layer 14 is deposited on most if not all printed circuit board surfaces potentially exposed to air, moisture or water. McCullough expressly states that such surfaces include surfaces 20 of the board, surfaces 22 of components and surfaces 24 of component leads. Thus, McCullough's first coating layer 14 coats all surfaces including those that define cavities in the printed circuit board.

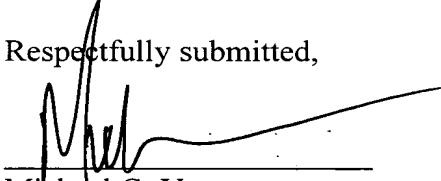
9. The second excerpt teaches the type of materials that can be used for first coating layer 14 to provide a bonded coating that will not delaminate, and that the first coating layer 14 is preferably vacuum deposited to maximize coverage of board, component and lead surfaces. This teaching also fails to teach or suggest Applicant's filler material as

recited in independent claims 1 and 12. For at least these reasons, Applicant respectfully asserts that the rejections based on McCullough are improper and should be withdrawn. Further, Applicant respectfully requests that if the Examiner continues to rely on McCullough in further rejections, that the Examiner produces an explanation as to why Applicant's arguments have been deemed unpersuasive.

Conclusion

10. In view of the foregoing, this application should be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after entering this paper into the record, that an interview will facilitate prosecution of this application, the Examiner is requested to call the Applicants' representative at the number provided below.

Respectfully submitted,



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